

85A 3169

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

KOJI SATO

Serial No.: 09/998,467

Filed: November 29, 2001

For: A SEMICONDUCTOR DEVICE
HAVING BUMPS (As Amended)

Art Unit: 2822

Examiner: Monica Lewis

7/B Amdt
3-8-03
R.WallAMENDMENTFAX RECEIVEDCommissioner for Patents
Washington, D.C. 20231

MAR 4 2003

Dear Sir:

TECHNOLOGY CENTER 2800

In response to the Office Action dated December 4, 2002, please amend the above-identified application as follows:

IN THE CLAIMS:

Please amend claim 1 as follows:

1. (Amended) A semiconductor device in which bumps formed on a surface of a semiconductor chip and leads of a lead frame are set to face each other and all simultaneously thermally bonded together, wherein:

each one said bump on said surface of said semiconductor chip is provided with a recess in a surface thereof that faces each of said leads of said lead frame, the recess being in the shape of an inverted truncated pyramid and comprising guide-surfaces that are inclined surfaces and are formed between a bottom of said recess and opening edges of said recess; and

each of said leads of said lead frame is provided with a projection formed at one end thereof so as to be bonded to each of said bumps, said projection being formed with guided-surfaces that are inclined surfaces.